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(71)Applicant : MITSUI CHEMICALS INC
(72)Inventor : SUKEGAWA MAKOTO
IRISATO YOSHIHIRO

(54) BASE MATERIAL

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a base material which, having a chemical structure similar to that of a biopolymer, not only exhibits an excellent stability when used but also is decomposed when released in sewage or nature such as rivers, hardly exhibiting a fear of accumulation by using a cross-linked polyamino acid.

SOLUTION: The cross-linked polyamino acid used for the base material has a partially cross-linked structure, has a backbone comprising a polypeptide formed by the dehydrocondensation of (20 kinds of) amino acids, and may be a copolymer containing other monomer components. Generally, the crosslinked polyamino acid preferably has a backbone comprising a homopolymer of polyaspartic acid, polyglutamic acid or polylysine, especially preferably polyaspartic acid. This base material is useful for preparing cosmetics, quasi- drugs, drugs, food, ink, etc.

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CLAIMS

[Claim(s)]

[Claim 1] The base material which comes to contain bridge formation polyamino acid.

[Claim 2] The base material whose bridge formation polyamino acid is bridge formation acidity polyamino acid and which was indicated to claim 1.

[Claim 3] The basis whose bridge formation acidity polyamino acid is a bridge formation Pori aspartic acid and which was indicated to claim 2.

[Claim 4] The base material indicated they to be [claim 1 thru/or any of 3]. [whose bridge formation polyamino acid is the particle whose weighted mean diameter is 10nm - 500 micrometers]

[Claim 5] The base material for cosmetics indicated they to be [any / claim 1 thru/or / of 4].

[Claim 6] The base material for quasi drugs indicated they to be [any / claim 1 thru/or / of 4].

[Claim 7] The base material for drugs indicated they to be [any / claim 1 thru/or / of 4].

[Claim 8] The food-grade base material indicated they to be [any / claim 1 thru/or / of 4].

[Claim 9] The base material for ink indicated they to be [any / claim 1 thru/or / of 4].

[Claim 10] Cosmetics which come to contain the base material indicated they to be [any / claim 1 thru/or / of 4].

[Claim 11] Quasi drugs which come to contain the base material indicated they to be [any / claim 1 thru/or / of 4].

[Claim 12] Drugs which come to contain the base material indicated they to be [any / claim 1 thru/or / of 4].

[Claim 13] Food which comes to contain the base material indicated they to be [any / claim 1 thru/or / of 4].

[Claim 14] Ink which comes to contain the base material indicated they to be [any / claim 1 thru/or / of 4].

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to a base material. This invention relates to the base material for cosmetics. This invention relates to the base material for quasi drugs. This invention relates to the base material for drugs. This invention relates to a food-grade base material. This invention relates to the base material for ink. The base material concerning this invention is excellent in safety and biodegradability.

[0002]

[Description of the Prior Art] In technical fields, such as [technological background of base material] cosmetics, quasi drugs, drugs, and food, the various base materials by the Prior art have been used. Since the base material used in these technical fields contacts a living body, it is required that stimulative and allergy inducement nature to the skin or membrane should be low. As a base material of the well-known official business used in these technical fields, the alkali neutralization salt of bridge formation polyacrylic acid, a carboxyvinyl polymer, etc. can be mentioned, for example. Although the base material of such well-known official businesses has cleared the safety to a living body, it has a possibility that it may be accumulated in an environment, without hardly being decomposed if the base material of such well-known official businesses is emitted to natures, such as sewage and a river.

[0003] since digestion be carry out by enzyme operation, and antigenic [in the living body] moreover be show but it be show clearly that inflammatory [as opposed to the skin or membrane of a living thing in a decomposition product] be low even if [application to cosmetics of polyamino acid system resin] polyamino acid be absorb by in the living body, also to people, it be an easy material and the Pori aspartic acid, Polly gamma-glutamic acid, and the poly lysine be discover from the nature. Though polyamino acid is synthetic macromolecule, research is done more in ancient times as a biopolymer model on the chemical structure. And in addition to the application as an alternative material of general-purpose native protein, such as natural leather and silk, application research to an artificial skin, oxygen immobilization support, a piezoelectric device, perfumery and cosmetics, etc. has also been done ("polyamino acid-application and view [-]" Kodansha (1974)). Researches and developments have been furthered about the technique of applying water-soluble polyamino acid to the perfumery-and-cosmetics field.

[0004] the case where the wetting agent which comes to have a polyglutamic acid salt is used for JP,59-209635,A as a moisturizer for makeup -- grace and smoothness moderate, on the skin -- giving -- the skin -- it is indicated that there is effectiveness which prevents that.

[0005] It is indicated by JP,63-35698,A that sufficient stimulus depressor effect is acquired, the surfactant constituent characterized by the thing which is chosen from polyglutamic acid, its salt, the Pori aspartic acid, and its salt, and which blend one kind of skin stimulus inhibitor at least is moreover cheap, and operation on an industrial scale is easy for it, without an anionic surface active agent spoiling the surface activity ability which it originally has.

[0006] It is indicated by U.S. Pat. No. 4,363,797 that the Pori aspartic-acid derivative which has a thiol group fits the shampoo, the lotion, the color, and the bathing agent.

[0007] It is indicated that the hair processing agent constituent which becomes JP,6-248072,A

from the water-soluble amino acid derivative which has a thiol group and/or a disulfide radical is suitable for applications, such as ** of a shampoo additive, a hair cream, a hair lotion, and hair brushing.

[0008] However, in these conventional technique, all, since polyamino acid was non-crosslinked polymer, it was not practical to the top where molecular weight is low, as a base material.

[0009] In JP,7-224163,A, [technological background of bridge formation polyamino acid system resin] this invention persons constructed the bridge in diamine in the Pori succinimid, and indicated about the approach of hydrolyzing the remaining imide rings with alkali and obtaining absorptivity resin with high salt water water absorption power. The resin constructed for which a bridge and obtained in these polyamino acid absorbs and swells water, and the absorbed water once has the property to be hard to emit even if it applies a load. Thus, since it has water retention and has biodegradability, it is a material gentle to earth environment.

[0010] As a manufacturing method of these bridge formation polyamino acid the approach (Akamatsu et al. --) of making acidic amino acid constructing a bridge and obtaining hydro gel U.S. Pat. No. 3948863; JP,52-41309,B, Iwatsuki et al., the approach (Sikes et al. --) of reacting JP,5-279416,A, the Pori aspartic acid, an aspartic acid, and a cross linking agent with heat Patent Publication Heisei No. 506244 [six to]; United States patent 5247068th and 5284936, The approach (country ** et al., macromolecule collected works, 50 No. 10, 755 pages (1993)) of irradiating a gamma ray is in Suzuki et al., JP,7-309943,A, Harada et al., JP,8-59820,A, and Polly gamma-glutamic acid.

[0011]

[Problem(s) to be Solved by the Invention] One of the technical problems which this invention tends to solve is offering the new base material which has the chemical structure near a biopolymer expected to discover the safety to a more advanced living body as compared with the base material of the well-known official business which has cleared the safety to a living body once.

[0012] A possibility of it not only showing the outstanding stability at the time of use, but decomposing and accumulating it in an environment after use even if it emits one of the technical problems which this invention tends to solve to natures, such as sewage and a river, is offering the new base material which has the chemical structure near few biopolymers.

[0013] One of the technical problems which this invention tends to solve is offering the new base material which has the chemical structure near a biopolymer which discovers the outstanding feeling of use.

[0014]

[Means for Solving the Problem] As a result of inquiring wholeheartedly in view of the trouble in the above-mentioned Prior art that a technical problem should be solved, by using bridge formation polyamino acid as base materials, such as a base material for cosmetics, a base material for quasi drugs, a base material for drugs, and a food-grade base material, this invention persons find out the knowledge that the above-mentioned technical problem is solvable, and came to complete this invention based on this knowledge. That is, this invention is specified according to the matter indicated to the following [1] - [14].

[0015] [1] The base material which comes to contain bridge formation polyamino acid.

[0016] [2] The base material whose bridge formation polyamino acid is bridge formation acidity polyamino acid and which was indicated to [1].

[0017] [3] The basis whose bridge formation acidity polyamino acid is a bridge formation Pori aspartic acid and which was indicated to [2].

[0018] [4] The base material indicated they to be [any of [1] thru/or [3] whose bridge formation polyamino acid is the particle whose weighted mean diameter is 10nm - 500 micrometers].

[0019] [5] The base material for cosmetics indicated they to be [any of [1] thru/or [4]].

[0020] [6] The base material for quasi drugs indicated they to be [any of [1] thru/or [4]].

[0021] [7] The base material for drugs indicated they to be [any of [1] thru/or [4]].

[0022] [8] The food-grade base material indicated they to be [any of [1] thru/or [4]].

[0023] [9] The base material for ink indicated they to be [any of [1] thru/or [4]].

[0024] [10] Cosmetics which come to contain the base material indicated they to be [any of [1]

thru/or [4]].

[0025] [11] Quasi drugs which come to contain the base material indicated they to be [any of [1] thru/or [4]].

[0026] [12] Drugs which come to contain the base material indicated they to be [any of [1] thru/or [4]].

[0027] [13] Food which comes to contain the base material indicated they to be [any of [1] thru/or [4]].

[0028] [14] Ink which comes to contain the base material indicated they to be [any of [1] thru/or [4]].

[0029]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained to a detail.

[0030] The bridge formation polyamino acid used for the base material concerning [structure of bridge formation polyamino acid] this invention has the structure over which some polyamino acid constructed the bridge. The basic frame of bridge formation polyamino acid consists of a polypeptide in which amino acid carried out dehydration condensation.

[0031] As an example of [amino acid] amino acid, 20 kinds of amino acid shown in following ** - ** can be mentioned, for example.

** Amino acid with non-polar, i.e., hydrophobic, R group; an alanine, a valine, a leucine, an isoleucine, a methionine, a tryptophan, a phenylalanine, a proline.

** Amino acid which does not have a charge although it is a polarity; a glycine, a serine, a threonine, a cysteine, a thyrosin, an asparagine, a glutamine.

** Amino acid which has R group with positive charge; a lysine, a histidine, an arginine.

** Amino acid which has R group with a negative charge; an aspartic acid, glutamic acid.

[0032] As other examples of amino acid, aminosulfonic acid, such as amino acid, such as N substitution product of omega-ester of L-ornithine, a series of alpha-amino acid, the beta-alanine, gamma-aminobutyric acid, neutral amino acid, acidic amino acid, and acidic amino acid, basic amino acid, and basic amino acid and an aspartic-acid-L-phenylalanine dimer (Aspartame), and an amino acid derivative, and a L-cysteine acid, etc. can be mentioned, for example. The alpha-amino acid may be the optically active substance (L bodies, D object), or may be racemic modification. Moreover, polyamino acid may be a copolymer containing other monomer components.

[0033] As an example of a copolymer component (monomer components other than amino acid) in case [copolymerization component] bridge formation polyamino acid is a copolymer, an amino carboxylic acid, aminosulfonic acid, aminophosphonic acid, hydroxycarboxylic acid, a mercapto carboxylic acid, a mercapto sulfonic acid, mercapto phosphonic acid, etc. are mentioned, for example.

[0034] Moreover, a multiple-valued amine, polyhydric alcohol, a multiple-valued thiol, a multiple-valued carboxylic acid, a multiple-valued sulfonic acid, multiple-valued phosphonic acid, a multiple-valued hydrazine compound, a multiple-valued carbamoyl compound, a multiple-valued sulfonamide compound, a multiple-valued HOSUHOH amide compound, a multiple-valued epoxy compound, a multiple-valued isocyanate compound, a multiple-valued isothiocyanate compound, a multiple-valued aziridine compound, a multiple-valued carver mate compound, a multiple-valued carbamic acid compound, a multiple-valued oxazoline compound, a multiple-valued reactivity unsaturated bond compound, polyvalent metal, etc. are mentioned.

[0035] [Polymerization format] bridge formation polyamino acid may be a homopolymer, or may be a copolymer. When it is a copolymer, even if it is a block copolymer, it does not matter even if it is a random copolymer. Moreover, you may be a graft copolymer. In order to make the outstanding biodegradability discover, generally what made the basic frame the homopolymer of the Pori aspartic acid, polyglutamic acid, and the poly lysine is desirable. In order to make the outstanding absorptivity discover, generally what made the basic frame the homopolymer of the Pori aspartic acid and polyglutamic acid is desirable. When industrial production is taken into consideration, especially generally the homopolymer of the Pori aspartic acid is desirable.

[0036] About the side-chain structure of the bridge formation polyamino acid used for the base

material concerning [side chain structure] this invention, it does not matter even if the pendant radical to which polyamino acid residue was guided even if it was polyamino acid residue without a substituent is included. Other substituents may be introduced although it is the radical which has a carboxyl group with the structure which carried out ring breakage of the imide ring simply in the case of the Pori aspartic acid. For example, there are amino acid residue, such as a lysine, a hydrocarbon group which has a carboxyl group, a hydrocarbon group which has a sulfonic group.

[0037] Moreover, it does not matter even if it permutes [as opposed to / the case of acid polyamino acid / amide association of a polymer principal chain] by the alpha position in the case of aspartic-acid residue and the carboxyl group or the side chain radical is permuted at least by beta, and in the case of glutamic-acid residue, even if it permutes by the alpha position, it does not matter even if it permutes at least by gamma. A part especially for the bond part of the basic frame of the polyamino acid of this invention and a side-chain part is not limited. In the case of acid polyamino acid, they are amide association, an ester bond, and thioester association. Moreover, in the case of a carboxyl group, the form which the hydrogen atom combined is also available even if it constitutes a salt. As a counter ion of a carboxyl group, there are alkali-metal salts (Na, K, etc.), ammonium salt, an amine salt, etc.

[0038] The polyamino acid used for the base material concerning [structure-of-cross-linkage] this invention is a bridge formation object. A part especially for the bond part of the basic frame of this invention and a bridge formation part is not limited. In the case of acid polyamino acid, they are usually amide association, an ester bond, and thioester association.

[0039] [the permutation of a bridge formation part and a side-chain part] -- these bridge formation parts and/or a side-chain part may be permuted also in no permuting. The alkyl group to which the carbon atomic numbers 1-18 do not need to branch as a substituent, either, The cycloalkyl radical of the carbon atomic numbers 3-8, an aralkyl radical, the phenyl group that may be permuted, The naphthyl group which may be permuted, the alkoxy group to which the carbon atomic numbers 1-18 may branch, An aralkyloxy radical, a phenylthio radical, the alkylthio group to which the carbon atomic numbers 1-18 may branch, Even if the alkylamino radical on which the carbon atomic numbers 1-18 may branch, the dialkylamino radical on which the carbon atomic numbers 1-18 may branch, and the carbon atomic numbers 1-18 have branched The trialkylammonium radical which does not have to be carried out, a hydroxyl group, the amino group, a sulfhydryl group, a sulfonyl group, a sulfonic group, phosphonic acid radicals and these salts, an alkoxy carbonyl group, an alkylcarbonyloxy radical, etc. are mentioned.

[0040] Especially the manufacturing method of the bridge formation polyamino acid used for the base material concerning [manufacture approach of bridge formation polyamino acid] this invention is not limited. The bridge formation polyamino acid used for the base material concerning this invention can be manufactured by the approach of a publication to JP,7-224163,A, macromolecule collected works, 50 No. 10, 755 pages (1993), U.S. Pat. No. 3948863; JP,52-41309,B, JP,5-279416,A, Patent Publication Heisei 6-506244 No.; United States patent 5247068th and 5284936, and JP,7-309943,A.

[0041] Especially the configuration of the particle of the bridge formation polyamino acid used for the base material concerning the configuration of bridge formation polyamino acid and [magnitude] this invention is not limited. It does not matter even if it is the indeterminate form acquired by grinding, crushing, ****, and the desiccation granulation even if spherical and it is a spheroid. The magnitude (weighted mean particle diameter) of the particle of the bridge formation polyamino acid used for the base material concerning this invention differs according to a use application and the purpose of use. When it is used as cosmetics, in order to obtain slipping nature, stretch, and the feeling of use that does not give a feeling of a rough deposit, usually 10nm - 500 micrometers are desirable, 100nm - 200 micrometers are more desirable, and 1 micrometer - 100 micrometers are still more desirable.

[0042] In a [base material] this application specification, "base material" Although especially the becoming word is not limited, it includes the concept which "English base" and English "binder" have, for example. The word which it "base material" Comes to set on these specifications includes for example, the base material for cosmetics, the base material for quasi drugs, the base

material for drugs, a food-grade base material, and the base material for ink. The base material concerning this invention is applicable not only to cosmetics, quasi drugs, drugs, and food but aqueous adhesives, such as water paints, such as a skin care supply, a toiletries product, a water reducing agent for building materials, a water reducing agent for closets, water soluble paint, and emulsion paint, water-soluble adhesives, and emulsion adhesives, ink, a sizing agent, a textile-printing agent, a paper processing sizing compound, and a textiles sizing compound. In this specification, although are not necessarily limited, and the function which a base material demonstrates can be suitably chosen according to the purpose. For a product, for example, the shape of the shape of the shape of the shape of a paste, and a cream, gel, and jelly, and ointment, The shape of the shape of the shape of form, pastiness, and rice cake, and a marshmallow, a binding property, a wettability, moistness, Absorptivity, lubricity, adhesiveness, stickiness, skin stickiness, membrane stickiness, thixotropy (thixotropy) nature, The function which contributes to grant of pH stability, thickening nature, emulsion stability, O/W emulsion stability, W/O emulsion stability, hand improvement nature, mouthfeel improvement nature, the feeling improvement nature of a deglutition, noodle quality improvement nature, writing improvement nature, etc. is also included.

[0043] In a [cosmetics] this application specification, "cosmetics" Although especially the becoming word is not limited, it can mention the mode shown in following ** - **, for example.

** Basic cosmetics; a cream, a milky lotion, face toilet, etc.

** Cosmetics for hair; pomade, a hair cream, a shampoo, a rinse, etc.

** Makeup products; face powder, a lip stick, rouge, a manicure, a pancake, etc.

** Perfume; a perfume, cologne, etc.

** Mens' cosmetics (except a hair supply); the cream for males, face toilet for males, etc.

** Medicated cosmetic (quasi drugs); medicated cream, hair dye, etc.

** Others; soap etc.

Moreover, into the word which it "cosmetics" Comes to set on these specifications, all the modes currently indicated by the "26th new-employee cosmetics technical school text" (June, Heisei 6, **, Asahi Seimei-Hall, sponsor; Tokyo cosmetics Semiconductor Equipment & Materials International and the Tokyo cosmetics engineer meeting, cosponsorship; Japanese *****) are included.

[0044] As an example of cosmetics, for example A shampoo, a hair rinse, a split hair coat, The 1st agent for a permanent wave, the 2nd agent for a permanent wave, a hair cream, Aerosol mold form, a hair conditioner, a hair style, A conditioning setting agent, a setting lotion, a hair color, Hair bleach, a hair treatment, a hair treatment rinse, A liquid charge for a haircut (lotion), a hair spray, a hair pack, a tonic, Hair cosmetics, such as hair growing and a hair restorer, face toilet, an after shaving lotion, Vanishing cream, cleansing cream, an emollient cream, Various creams, such as cold cream, a moisture cream, a hand cream, and facial cleansing cream, A depilatory, a face pack, a milky lotion, a body shampoo, various soap, a lip stick, a sunscreen lotion, a manicure, a nail polish, a nail enamel remover, a makeup supply, a sunscreen supply, etc. can be mentioned.

[0045] "Quasi drugs" Especially the becoming word is not limited in a [quasi-drugs] this application specification. As an example of quasi drugs, tooth paste etc. can be mentioned, for example.

[0046] "Drugs" Especially the becoming word is not limited in a [drugs] this application specification. As an example of drugs, cataplasms (patches for surgery for cold cataplasm or a hot compress) etc. can be mentioned, for example.

[0047] The cataplasms which make [cataplasms] bridge formation polyamino acid a basis usually blend gelling agents, such as drugs, such as wetting agents, such as inorganic powder, such as a kaolin, a bentonite, titanium oxide, a calcium carbonate, and a zinc oxide, a glycerol, propylene glycol, and a sorbitol, Timor, menthol, mentha oil, camphor, a salicylic acid, and a methyl salicylate, and gelatin. In addition, gelatin modifiers, such as water soluble polymer compounds, such as a carboxymethyl cellulose, hydroxyethyl cellulose, polyvinyl alcohol, gum arabic, xanthan gum, and polyamino acid, a urea, and formaldehyde, and an emulsifier may be added. Although especially the method of manufacturing cataplasms is not restricted, usually each component is

mixed to homogeneity, considers as a poultice plaster body, spreading of this is carried out on suitable base fabrics, such as a lint cloth, at homogeneity, and it is manufactured by sticking the protection film made from exfoliation.

[0048] "Food" Especially the becoming word is not limited in [food] this application specification. As an example of food, fresh noodles, dried noodles, paste, Japanese sweets, a Western-style cake, a pan, etc. can be mentioned, for example.

[0049] "Ink" Especially the becoming word is not limited in a [ink] this application specification. As an example of ink, the water color ink used for a felt-tipped marker, a fountain pen, an ink jet printer, etc. can be mentioned, for example.

[0050] Although especially the loadings of the base material which comes to contain the bridge formation polyamino acid concerning [loadings of base material] this invention are not restricted, generally they are 0.1 - 20 % of the weight still more preferably 0.01 to 30% of the weight more preferably 0.001 to 50% of the weight preferably [convert into dry weight and].

[0051] The base material concerning [additive] this invention can be used with an additive. As for an additive, what usually has the property decomposed after use is desirable. In using the base material concerning this invention for example, for the charge of skin makeup The surfactant currently generally used as a charge component of skin makeup, oil, a moisturizer, A coat formation agent, an oil gelling agent, a metallic oxide, an organic ultraviolet ray absorbent, inorganic metal salts, By combining and blending with an additive component and arbitration, such as organic metal salts, alcohols, a chelating agent, pH regulator, antiseptics, other thickeners, a drug effect component, coloring matter, and perfume It can be made various gestalten, for example, an oil/charge of water (O/W) mold emulsification makeup, water/charge of oil (W/O) mold emulsification makeup, a cream, a makeup milky lotion, face toilet, oily face toilet, a lip stick, foundation, a skin cleaning agent, etc.

[0052] When using the base material concerning this invention for example, for the charge of hair makeup, it can be combined and blended with the component and arbitration which are generally used as a charge component of hair makeup, such as a surfactant, other thickeners, an oil gelling agent, a metallic oxide, an organic ultraviolet ray absorbent, inorganic metal salts, organic metal salts, a pearl-ized agent, an antioxidant, antiseptics, a drug effect component, coloring matter, and perfume. Moreover, in order to raise the feel of hair, silicone derivatives, such as cationic polymers, such as a cation-ized cellulose, and dimethylpolysiloxane, amino denaturation silicone, polyether denaturation silicone, can also be blended. Especially the pharmaceutical form of the charge of hair makeup is not limited, but can be made into the general charge of hair makeup of various pharmaceutical forms, such as an emulsion, suspension, gel, a transperence solution, and aerosol, i.e., a pre shampoo agent, a shampoo, hair rinse, hair treatment, hair conditioner, a conditioning blow agent, etc. according to an application.

[0053] Although the cosmetics which come to contain the base material concerning this invention show the outstanding feeling of use, and viscosity stability, when it uses together with a metallic oxide, inorganic metal salts, organic metal salts, etc., they can acquire a good feeling of use, and viscosity stability especially. Moreover, it can consider as SANKEA cosmetics excellent in a feeling of use, and viscosity stability etc. by blending an organic ultraviolet ray absorbent. Moreover, the ultraviolet-rays prevention effectiveness can be further heightened by using together a metallic oxide and an organic ultraviolet ray absorbent.

[0054] As an example of a [metallic-oxide] metallic oxide, titanium oxide, a zinc oxide, a ferrous-oxide zirconium dioxide, cerium oxide, etc. are mentioned, and silica processing, alumina processing, silica alumina processing, metallic soap processing, fatty-acid processing, amino acid processing, siliconization, alkyl phosphating, the fluoridization, etc. may be given, for example. Moreover, what compound-ized these two or more sorts or these, and other organic fine particles and inorganic fine particles may be used. The magnitude of these metallic oxides, especially a configuration, etc. are not limited, but are independent or can be blended combining two or more sorts. Generally the loadings of these metallic oxides are 0.005 - 30 % of the weight preferably 0.001 to 50% of the weight.

[0055] As an example of a [surfactant] surfactant For example, sodium lauryl sulfate, lauryl sulfuric-acid triethanolamine, Alkyl sulfate, such as a lauryl ammonium sulfate, polyoxyethylene

lauryl ethereal sulfate, Polyoxyethylene-alkyl-ether sulfates, such as polyoxyethylene lauryl ethereal sulfate triethanolamine, Lauryl sulfonic-acid sodium, a lauryl sulfonic-acid potassium, lauryl sulfonic-acid triethanolamine, Alkyl sulfonates, such as lauryl sulfonic-acid ammonium and stearyl sulfonic-acid sodium, Alkyl diphenyl ether disulfon acid chloride, such as dodecyl diphenyl ether disulfon acid sodium, Alkylaryl sulfonates, such as sodium dodecylbenzenesulfonate, Alkyl naphthalene sulfonic acids, such as sodium salt of dodecyl naphthalene sulfonic-acid sodium and beta-naphthalene sulfonic-acid formalin condensate, Dialkyl sulfosuccinate, such as a ligninsulfonic acid salt, distearyl sulfo sodium succinate, and sodium dioctyl sulfosuccinate, Polyoxyethylene-alkyl-ether acetate, such as a polyoxyethylene lauryl ether acetic acid and polyoxyethylene lauryl ether sodium acetate, The alkali-metal salt of the copolymer which has carboxyl groups, such as an alkylene maleic-acid copolymer, Palm oil fatty acid, a palmitic acid, behenic acid, a lauric acid, stearin acid, A myristic acid, oleic acid, lauric-acid sodium, a lauric-acid potassium, Lauric-acid triethanolamine, lauric-acid ammonium, a sodium stearate, A fatty acid or its salts, such as a stearin acid potassium, triethanolamine stearate, and ammonium stearate, Anionic surfactants, such as monoalkyl phosphate, such as sodium laurylphosphate, laurylphosphate triethanolamine, and laurylphosphate ammonium, [0056] Lauryl alcohol, myristyl alcohol, cetanol, the cetostearyl alcohol, Higher alcohol, such as stearyl alcohol, 2-octyl dodecanol, and behenyl alcohol A glycerol, ethylene glycol, a diethylene glycol, triethylene glycol, A polyethylene glycol, propylene glycol, dipropylene glycol, Polyhydric alcohol, such as a polypropylene glycol, a sorbitol, SORUBITANTO, and pentaerythritol, The polyoxyethylene lauryl ether, the polyoxyethylene cetyl ether, Polyoxyethylene stearylether, the polyoxyethylene oleyl ether, Polyoxyethylene alkyl ether, such as the polyoxyethylene higher-alcohol ether, Polyoxyethylene octyl phenyl ether, the polyoxyethylene nonylphenyl ether, Polyoxyethylene octyldodecyl phenyl ether, polyoxyethylene octyl phenyl ether, Polyoxyethylene alkyl phenyl ether, such as the polyoxyethylene nonylphenyl ether, Polyoxyethylene styryl phenyl ether, a monostearin acid polyethylene glycol, A distearic acid polyethylene glycol, distearic acid ethylene glycol, Polyoxyethylene alkyl ester, such as polyoxyethylene hydrogenated castor oil, The copolymer of polyoxy ethylene glycol, such as a polyoxyethylene polyoxypropylene glycol, and a polyoxypropylene glycol, Mono-lauric-acid sorbitan, monostearin acid sorbitan, mono-oleic acid sorbitan, Mono-palmitic-acid sorbitan, sorbitan sesquioleate, palm-oil-fatty-acid sorbitan, Mono-palmitic-acid sorbitan, tristearin acid sorbitan, mono-oleic acid sorbitan, Sorbitan alkyl ester, such as triolein acid sorbitan, mono-lauryl acid polyoxyethylene sorbitan, Polyoxyethylene palm-oil-fatty-acid sorbitan, mono-palmitic-acid polyoxyethylene sorbitan, Monostearin acid polyoxyethylene sorbitan, tristearin acid polyoxyethylene sorbitan, Mono-oleic acid polyoxyethylene sorbitan, triolein acid polyoxyethylene sorbitan, Polyoxyethylene sorbitan alkyl ester, such as Tri isostearic acid polyoxyethylene sorbitan, Tetra-fatty-acid polyoxyethylene sorbitol, such as tetra-oleic acid polyoxyethylene sorbitol, Glycerol alkyl ester, such as glyceryl monostearate, a mono-oleic acid glycerol, and a mono-caprylic-acid glycerol, Propylene glycol alkyl ester, such as monostearin acid propylene glycol, The Nonion nature surfactants, such as alkyl alkanol amides, such as polyoxyethylene alkylamine, such as a polyoxyethylene stearyl amine, palm-kernel-oil fatty-acid diethanolamide, and lauric-acid diethanolamide, [0057] Cation system surfactants, such as benzalkonium salts, such as dialkyl dimethylanmonium salts, such as alkyl trimethylammonium salts, such as alkylamine salts, such as coconut amine acetate and stearyl amine acetate, chlorination lauryl trimethylammonium, stearyl chloride trimethylammonium, and chlorination cetyl trimethylammonium, chlorination distearyldimethylbenzylammonium, and chlorination dialkyl (carbon atomic numbers 12-18) dimethylanmonium, and a benzalkonium chloride, [0058] Alkyl betaines, such as a lauryl betaine and a stearyl betaine, lauryldimethyl betaine aminoacetate, Alkyl dimethylamino acetic-acid betaines, such as a stearyl dimethylamino acetic-acid betaine, Alkyl carboxymethyl hydroxyethyl imidazolinium betaine, such as 2-alkyl-N-carboxymethyl-N-hydroxyethyl imidazolinium betaine, Alkylamide propyl betaines, such as a lauric-acid amide propyl betaine and a coconut acid-amide propyl betaine, Both-sexes system surfactants, such as alkyl dimethyl amine oxides, such as alkyl hydroxy sulfobetaine, such as lauryl hydroxy sulfobetaine, and a lauryldimethyl amine oxide, etc. can be mentioned.

[0059]

[Example] Hereafter, although an example explains this invention more concretely, this invention is not limited only to an example. In the following examples and examples of a comparison, the "section" means the "weight section."

[0060] [The evaluation approach]

(1) Measure by the compost method and the measurement biodegradability of biodegradability is ASTM. ISO which is application of D-5338.92 CD It carried out according to 14855. That is, the carbon content contained in a test sample was first measured in elemental analysis. Next, the test sample of the 15 sections was added to INOKYURAMU of the 800 sections, the amount of the carbon dioxide which performed for 40 days and was generated at 58 degrees C was measured, and the amount of generating carbon dioxides to the amount which converted into the carbon dioxide the carbon content contained in a test sample was expressed as a rate of biodegradation (%).

[0061] (2) Lessons was taken for the cosmetics practical use test cosmetics practical use test from the following items by 20 special panels (18-22-year-old woman), and organoleptics performed it.

** The feel at the time of spreading (take)

** The feel at the time of spreading (mileage)

** The feel after spreading (in the least admiration)

** The feel after spreading (gently admiration)

Lessons was taken for 20 special panels (18-22-year-old woman) from the above-mentioned item, and they estimated [the following criteria].

O -- A.

O -- Good.

** -- Good.

x -- Improper.

[0062] The [example 1 of compound manufacture] lysine methyl ester and 2 hydrochloride 7.2 section and the lysine and 1 hydrochloride 22.6 section were dissolved in the distilled water 40 section, and the caustic-alkali-of-sodium 7.8 section was added little by little, it neutralized, and the lysine water solution was prepared. On the other hand, the Pori succinimid 100 section of weight-average-molecular-weight (Mw) 96,000 was dissolved in DMF of the 400 sections under the nitrogen air current, and the lysine water solution was added, and at the room temperature, stirring was stopped after 1-hour churning and it reacted for 20 hours. It transported to the mixer by which the impeller with a cutting edge attached the reactant, the distilled water 400 section and the methanol 400 section were added, beating of the gel was carried out for 5 minutes in 8000rpm, and the caustic-alkali-of-sodium water-solution 129.7 section was dropped over 2 hours further 27% of the weight. It neutralized after dropping and 2 more hour churning until it was set to pH=7 using hydrochloric-acid water 7% of the weight. The methanol 300 section was further added after neutralization, and precipitate was dried at 60 degrees C, further, it ground until the particle diameter was set to 100 micrometers or less using the sample mill, and the absorptivity polymer 143 section was obtained. When the biodegradability of this resin was investigated, the rate of biodegradation was as good as 102%.

[0063] Bridge formation polyacrylic acid was manufactured according to the approach of [example 1 of compound manufacture comparison] JP,54-30710,B. When the biodegradability of this resin was investigated, the rate of biodegradation hardly indicated biodegradability to be 2.2%.

[0064] The bridge formation Pori aspartic acid obtained in the example 1 of [example 1] compound manufacture was blended, and face toilet was prepared. A combination presentation is as being shown below.

Bridge formation Pori aspartic acid 1.0 methyl parahydroxybenzoate 0.1 ethanol 10.0 purified water 88.9 thus obtained face toilet *****, and a cosmetics practical use test were performed. The result of a cosmetics practical use test was very good as shown in Table -1 [Table 1].

[表1] 表-1 化粧品実用テスト～1

		塗布時の感触		塗布後の感触	
		① とれ	② のび	③さっぱり感	④しっとり感
評価結果	◎	16人	17人	18人	17人
	○	4人	3人	2人	3人
	△	0人	0人	0人	0人
	×	0人	0人	0人	0人

The bridge formation polyacrylic acid obtained in the example 1 of the [example 1 of comparison] compound manufacture comparison was blended, and face toilet was prepared like the example 1. The same practical use test as an example 1 was carried out and evaluated. Thus, face toilet ***** and the cosmetics practical use test which were obtained were performed. The result of a cosmetics practical use test was inferior as compared with the result of an example 1 as shown in Table -2 [Table 2].

[表2] 表-2 化粧品実用テスト～2

		塗布時の感触		塗布後の感触	
		① とれ	② のび	③さっぱり感	④しっとり感
評価結果	◎	4人	5人	3人	4人
	○	14人	13人	16人	15人
	△	2人	2人	1人	1人
	×	0人	0人	0人	0人

The bridge formation Pori aspartic acid obtained in the example 1 of [example 2] compound manufacture was blended, and hair style gel was prepared. A combination presentation is as being shown below.

A bridge formation Pori aspartic acid 1.2 lactic-acid monoethanolamide 0.3 soybean-protein hydrolyzate 0.8 antiseptics 1.5 perfume 0.001 purified water Compared with the hair style gel which blended the bridge formation polyacrylic acid of the example 1 of a compound manufacture comparison, there was little stickiness, and 96.2, thus the obtained hair style gel were felt refreshed, and that of the set force was good.

[0065] The bridge formation Pori aspartic acid obtained in the example 1 of [example 3] compound manufacture was blended, and cleansing cream gel was prepared. A combination presentation is as being shown below.

A bridge formation Pori aspartic acid 0.6 polyoxyethylene (15) nonylphenyl ether 2.0 triethanolamine 0.4 methylparaben 0.1 ethylparabens 0.1 propylparabens 0.05 ethanol 45.0 purified water Compared with the cleansing cream gel which has not blended the bridge formation Pori aspartic acid, 51.75, thus the obtained cleansing cream gel maintained the grace

of the skin, and had the effectiveness which smooths the skin.

[0066] The bridge formation Pori aspartic acid obtained in the example 1 of [example 4] compound manufacture was blended, and cleansing cream was prepared. A combination presentation is as being shown below.

A bridge formation Pori aspartic acid 0.5 liquid paraffins 25.0 polyoxyethylene (15) palm-oil alkylamine 1.2 cetostearyl-alcohol hydroxy ethyl ether 10.0 antiseptics 0.3 triethanolamines 0.5 perfume 0.001 purified water 62.5 -- this cleansing cream was felt refreshed compared with the cleansing cream which has not blended the bridge formation Pori aspartic acid, moreover, the grace of the skin was maintained and there was effectiveness which smooths the skin.

[0067] The bridge formation Pori aspartic acid obtained in the example 1 of [example 5] compound manufacture was blended, and the poultice plaster body constituent was prepared. A combination presentation is as being shown below.

A bridge formation Pori aspartic acid The 5.0 carboxymethyl cellulose Na 10.0 glycerols 15.0 sorbitols 15.0 kaolins 12.0 l-menthol 2.5 d-camphor 0.3 methyl salicylates 0.2 gelatin 10.0 purified water 30.0 -- compared with the poultice plaster body constituent with which this poultice plaster body constituent has not blended the bridge formation Pori aspartic acid, sagging was controlled remarkably.

[0068] The bridge formation Pori aspartic acid obtained in the example 1 of [example 6] compound manufacture was blended, and red ink was prepared. A combination presentation is as being shown below.

A bridge formation Pori aspartic acid 2.5 eosine G H The 7.0 SANSETTO yellow FOF 1.0 ethylene glycol 15.0 glycerols 15.0 phenols 0.4 purified water 59.1 -- when the fountain pen was filled up with this ink and having been written down on the PPC form (NBS Ricoh make, alkaline paper), it excelled in note nature and there was no blot.

[0069]

[Effect of the Invention] By this invention, the feeling of use and safety which were excellent at the time of use are discovered to coincidence, and after abandonment, it can decompose easily and a use rear stirrup can offer an environment-friendly base material. One constituents, such as cosmetics, quasi drugs, drugs, food, ink, a skin care supply, a toiletries product, a water reducing agent of building materials, water soluble paint, a sizing agent, a textile-printing agent, and a paper processing sizing compound, can use the base material concerning this invention, carrying out it.

[0070] ** One of the effectiveness of this invention is being able to offer the new base material which comes to contain the bridge formation polyamino acid which is expected to discover the safety to a more advanced living body, and which has the chemical structure near a biopolymer as compared with the base material of the well-known official business which has cleared the safety to a living body.

[0071] ** A possibility of it not only showing the outstanding stability at the time of use, but decomposing and accumulating it in an environment after use even if it emits one of the effectiveness of this invention to natures, such as sewage and a river, is being able to offer the new base material which has the chemical structure near few biopolymers.

[0072] ** One of the effectiveness of this invention is being able to offer the new base material which comes to contain the bridge formation polyamino acid which discovers the outstanding feeling of use, and which has the chemical structure near a biopolymer.

[Translation done.]

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TECHNICAL FIELD

[Field of the Invention] This invention relates to a base material. This invention relates to the base material for cosmetics. This invention relates to the base material for quasi drugs. This invention relates to the base material for drugs. This invention relates to a food-grade base material. This invention relates to the base material for ink. The base material concerning this invention is excellent in safety and biodegradability.

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PRIOR ART

[Description of the Prior Art] In technical fields, such as [technological background of base material] cosmetics, quasi drugs, drugs, and food, the various base materials by the Prior art have been used. Since the base material used in these technical fields contacts a living body, it is required that stimulative and allergy inducement nature to the skin or membrane should be low. As a base material of the well-known official business used in these technical fields, the alkali neutralization salt of bridge formation polyacrylic acid, a carboxyvinyl polymer, etc. can be mentioned, for example. Although the base material of such well-known official businesses has cleared the safety to a living body, it has a possibility that it may be accumulated in an environment, without hardly being decomposed if the base material of such well-known official businesses is emitted to natures, such as sewage and a river.

[0003] since digestion be carry out by enzyme operation, and antigenic [in the living body] moreover be show but it be show clearly that inflammatory [as opposed to the skin or membrane of a living thing in a decomposition product] be low even if [application to cosmetics of polyamino acid system resin] polyamino acid be absorb by in the living body, also to people, it be an easy material and the Pori aspartic acid, Polly gamma-glutamic acid, and the poly lysine be discover from the nature. Though polyamino acid is synthetic macromolecule, research is done more in ancient times as a biopolymer model on the chemical structure. And in addition to the application as an alternative material of general-purpose native protein, such as natural leather and silk, application research to an artificial skin, oxygen immobilization support, a piezoelectric device, perfumery and cosmetics, etc. has also been done ("polyamino acid-application and view [-]" Kodansha (1974).). Researches and developments have been furthered about the technique of applying water-soluble polyamino acid to the perfumery-and-cosmetics field.

[0004] the case where the wetting agent which comes to have a polyglutamic acid salt is used for JP,59-209635,A as a moisturizer for makeup -- grace and smoothness moderate, on the skin -- giving -- the skin -- it is indicated that there is effectiveness which prevents that.

[0005] It is indicated by JP,63-35698,A that sufficient stimulus depressor effect is acquired, the surfactant constituent characterized by the thing which is chosen from polyglutamic acid, its salt, the Pori aspartic acid, and its salt, and which blend one kind of skin stimulus inhibitor at least is moreover cheap, and operation on an industrial scale is easy for it, without an anionic surface active agent spoiling the surface activity ability which it originally has.

[0006] It is indicated by U.S. Pat. No. 4,363,797 that the Pori aspartic-acid derivative which has a thiol group fits the shampoo, the lotion, the color, and the bathing agent.

[0007] It is indicated that the hair processing agent constituent which becomes JP,6-248072,A from the water-soluble polyamino acid derivative which has a thiol group and/or a disulfide radical is suitable for applications, such as ** of a shampoo additive, a hair cream, a hair lotion, and hair brushing.

[0008] However, in these conventional technique, all, since polyamino acid was non-crosslinked polymer, it was not practical to the top where molecular weight is low, as a base material.

[0009] In JP,7-224163,A, [technological background of bridge formation polyamino acid system resin] this invention persons constructed the bridge in diamine in the Pori succinimid, and indicated about the approach of hydrolyzing the remaining imide rings with alkali and obtaining

absorptivity resin with salt water water absorption power. The resin constructed for which a bridge and obtained in these polyamino acid absorbs and swells water, and the absorbed water once has the property to be hard to emit even if it applies a load. Thus, since it has water retention and has biodegradability, it is a material gentle to earth environment.

[0010] As a manufacturing method of these bridge formation polyamino acid the approach (Akamatsu et al. —) of making acidic amino acid constructing a bridge and obtaining hydro gel U.S. Pat. No. 3948863; JP,52-41309,B, Iwatsuki et al., the approach (Sikes et al. —) of reacting JP,5-279416,A, the Pori aspartic acid, an aspartic acid, and a cross linking agent with heat Patent Publication Heisei No. 506244 [six to]; United States patent 5247068th and 5284936, The approach (country ** et al., macromolecule collected works, 50 No. 10, 755 pages (1993)) of irradiating a gamma ray is in Suzuki et al., JP,7-309943,A, Harada et al., JP,8-59820,A, and Polly gamma-glutamic acid.

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EFFECT OF THE INVENTION

[Effect of the Invention] By this invention, the feeling of use and safety which were excellent at the time of use are discovered to coincidence, and after abandonment, it can decompose easily and a use rear stirrup can offer an environment-friendly base material. One constituents, such as cosmetics, quasi drugs, drugs, food, ink, a skin care supply, a toiletries product, a water reducing agent of building materials, water soluble paint, a sizing agent, a textile-printing agent, and a paper processing sizing compound, can use the base material concerning this invention, carrying out it.

[0070] ** One of the effectiveness of this invention is being able to offer the new base material which comes to contain the bridge formation polyamino acid which is expected to discover the safety to a more advanced living body, and which has the chemical structure near a biopolymer as compared with the base material of the well-known official business which has cleared the safety to a living body.

[0071] ** A possibility of it not only showing the outstanding stability at the time of use, but decomposing and accumulating it in an environment after use even if it emits one of the effectiveness of this invention to natures, such as sewage and a river, is being able to offer the new base material which has the chemical structure near few biopolymers.

[0072] ** One of the effectiveness of this invention is being able to offer the new base material which comes to contain the bridge formation polyamino acid which discovers the outstanding feeling of use, and which has the chemical structure near a biopolymer.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] One of the technical problems which this invention tends to solve is offering the new base material which has the chemical structure near a biopolymer expected to discover the safety to a more advanced living body as compared with the base material of the well-known official business which has cleared the safety to a living body once.

[0012] A possibility of it not only showing the outstanding stability at the time of use, but decomposing and accumulating it in an environment after use even if it emits one of the technical problems which this invention tends to solve to natures, such as sewage and a river, is offering the new base material which has the chemical structure near few biopolymers.

[0013] One of the technical problems which this invention tends to solve is offering the new base material which has the chemical structure near a biopolymer which discovers the outstanding feeling of use.

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MEANS

[Means for Solving the Problem] As a result of inquiring wholeheartedly in view of the trouble in the above-mentioned Prior art that a technical problem should be solved, by using bridge formation polyamino acid as base materials, such as a base material for cosmetics, a base material for quasi drugs, a base material for drugs, and a food-grade base material, this invention persons find out the knowledge that the above-mentioned technical problem is solvable, and came to complete this invention based on this knowledge. That is, this invention is specified according to the matter indicated to the following [1] - [14].

[0015] [1] The base material which comes to contain bridge formation polyamino acid.

[0016] [2] The base material whose bridge formation polyamino acid is bridge formation acidity polyamino acid and which was indicated to [1].

[0017] [3] The basis whose bridge formation acidity polyamino acid is a bridge formation Pori aspartic acid and which was indicated to [2].

[0018] [4] The base material indicated they to be [any of [1] thru/or [3] whose bridge formation polyamino acid is the particle whose weighted mean diameter is 10nm - 500 micrometers].

[0019] [5] The base material for cosmetics indicated they to be [any of [1] thru/or [4]].

[0020] [6] The base material for quasi drugs indicated they to be [any of [1] thru/or [4]].

[0021] [7] The base material for drugs indicated they to be [any of [1] thru/or [4]].

[0022] [8] The food-grade base material indicated they to be [any of [1] thru/or [4]].

[0023] [9] The base material for ink indicated they to be [any of [1] thru/or [4]].

[0024] [10] Cosmetics which come to contain the base material indicated they to be [any of [1] thru/or [4]].

[0025] [11] Quasi drugs which come to contain the base material indicated they to be [any of [1] thru/or [4]].

[0026] [12] Drugs which come to contain the base material indicated they to be [any of [1] thru/or [4]].

[0027] [13] Food which comes to contain the base material indicated they to be [any of [1] thru/or [4]].

[0028] [14] Ink which comes to contain the base material indicated they to be [any of [1] thru/or [4]].

[0029]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained to a detail.

[0030] The bridge formation polyamino acid used for the base material concerning [structure of bridge formation polyamino acid] this invention has the structure over which some polyamino acid constructed the bridge. The basic frame of bridge formation polyamino acid consists of a polypeptide in which amino acid carried out dehydration condensation.

[0031] As an example of [amino acid] amino acid, 20 kinds of amino acid shown in following ** - ** can be mentioned, for example.

** Amino acid with non-polar, i.e., hydrophobic, R group; an alanine, a valine, a leucine, an isoleucine, a methionine, a tryptophan, a phenylalanine, a proline.

** Amino acid which does not have a charge although it is a polarity; a glycine, a serine, a

threonine, a cysteine, a proline, an asparagine, a glutamine.

** Amino acid which has R group with positive charge; a lysine, a histidine, an arginine.

** Amino acid which has R group with a negative charge; an aspartic acid; glutamic acid.

[0032] As other examples of amino acid, aminosulfonic acid, such as amino acid, such as N substitution product of omega-ester of L-ornithine, a series of alpha-amino acid, the beta-alanine, gamma-aminobutyric acid, neutral amino acid, acidic amino acid, and acidic amino acid, basic amino acid, and basic amino acid and an aspartic-acid-L-phenylalanine dimer (Aspartame), and an amino acid derivative, and a L-cysteine acid, etc. can be mentioned, for example. The alpha-amino acid may be the optically active substance (L bodies, D object), or may be racemic modification. Moreover, polyamino acid may be a copolymer containing other monomer components.

[0033] As an example of a copolymer component (monomer components other than amino acid) in case [copolymerization component] bridge formation polyamino acid is a copolymer, an amino carboxylic acid, aminosulfonic acid, aminophosphonic acid, hydroxycarboxylic acid, a mercapto carboxylic acid, a mercapto sulfonic acid, mercapto phosphonic acid, etc. are mentioned, for example.

[0034] Moreover, a multiple-valued amine, polyhydric alcohol, a multiple-valued thiol, a multiple-valued carboxylic acid, a multiple-valued sulfonic acid, multiple-valued phosphonic acid, a multiple-valued hydrazine compound, a multiple-valued carbamoyl compound, a multiple-valued sulfonamide compound, a multiple-valued HOSUHOXON amide compound, a multiple-valued epoxy compound, a multiple-valued isocyanate compound, a multiple-valued isothiocyanate compound, a multiple-valued aziridine compound, a multiple-valued carver mate compound, a multiple-valued carbamic acid compound, a multiple-valued oxazoline compound, a multiple-valued reactivity unsaturated bond compound, polyvalent metal, etc. are mentioned.

[0035] [Polymerization format] bridge formation polyamino acid may be a homopolymer, or may be a copolymer. When it is a copolymer, even if it is a block copolymer, it does not matter even if it is a random copolymer. Moreover, you may be a graft copolymer. In order to make the outstanding biodegradability discover, generally what made the basic frame the homopolymer of the Pori aspartic acid, polyglutamic acid, and the poly lysine is desirable. In order to make the outstanding absorptivity discover, generally what made the basic frame the homopolymer of the Pori aspartic acid and polyglutamic acid is desirable. When industrial production is taken into consideration, especially generally the homopolymer of the Pori aspartic acid is desirable.

[0036] About the side-chain structure of the bridge formation polyamino acid used for the base material concerning [side-chain structure] this invention, it does not matter even if the pendant radical to which polyamino acid residue was guided even if it was polyamino acid residue without a substituent is included. Other substituents may be introduced although it is the radical which has a carboxyl group with the structure which carried out ring breakage of the imide ring simply in the case of the Pori aspartic acid. For example, there are amino acid residue, such as a lysine, a hydrocarbon group which has a carboxyl group, a hydrocarbon group which has a sulfonic group.

[0037] Moreover, it does not matter even if it permutes [as opposed to / the case of acid polyamino acid / amide association of a polymer principal chain] by the alpha position in the case of aspartic-acid residue and the carboxyl group or the side chain radical is permuted at least by beta, and in the case of glutamic-acid residue, even if it permutes by the alpha position, it does not matter even if it permutes at least by gamma. A part especially for the bond part of the basic frame of the polyamino acid of this invention and a side-chain part is not limited. In the case of acid polyamino acid, they are amide association, an ester bond, and thioester association. Moreover, in the case of a carboxyl group, the form which the hydrogen atom combined is also available even if it constitutes a salt. As a counter ion of a carboxyl group, there are alkali-metal salts (Na, K, etc.), ammonium salt, an amine salt, etc.

[0038] The polyamino acid used for the base material concerning [structure-of-cross-linkage] this invention is a bridge formation object. A part especially for the bond part of the basic frame of this invention and a bridge formation part is not limited. In the case of acid polyamino acid, they are usually amide association, an ester bond, and thioester association.

[0039] [the permutation of a bridge formation part and a side-chain part] -- these bridge formation parts and/or a side-chain part may be permuted also in not permuting. The alkyl group to which the carbon atomic numbers 1-18 do not need to branch as a substituent, either, The cycloalkyl radical of the carbon atomic numbers 3-8, an aralkyl radical, the phenyl group that may be permuted, The naphthyl group which may be permuted, the alkoxy group to which the carbon atomic numbers 1-18 may branch, An aralkyloxy radical, a phenylthio radical, the alkylthio group to which the carbon atomic numbers 1-18 may branch, Even if the alkylamino radical on which the carbon atomic numbers 1-18 may branch, the dialkylamino radical on which the carbon atomic numbers 1-18 may branch, and the carbon atomic numbers 1-18 have branched The trialkylammonium radical which does not have to be carried out, a hydroxyl group, the amino group, a sulfhydryl group, a sulfonyl group, a sulfonic group, phosphonic acid radicals and these salts, an alkoxy carbonyl group, an alkylcarbonyloxy radical, etc. are mentioned.

[0040] Especially the manufacturing method of the bridge formation polyamino acid used for the base material concerning [manufacture approach of bridge formation polyamino acid] this invention is not limited. The bridge formation polyamino acid used for the base material concerning this invention can be manufactured by the approach of a publication to JP,7-224163,A, macromolecule collected works, 50 No. 10, 755 pages (1993), U.S. Pat. No. 3948863; JP,52-41309,B, JP,5-279416,A, Patent Publication Heisei 6-506244 No.; United States patent 5247068th and 5284936, and JP,7-309943,A.

[0041] Especially the configuration of the particle of the bridge formation polyamino acid used for the base material concerning the configuration of bridge formation polyamino acid and [magnitude] this invention is not limited. It does not matter even if it is the indeterminate form acquired by grinding, crushing, ****, and the desiccation granulation even if spherical and it is a spheroid. The magnitude (weighted mean particle diameter) of the particle of the bridge formation polyamino acid used for the base material concerning this invention differs according to a use application and the purpose of use. When it is used as cosmetics, in order to obtain slipping nature, stretch, and the feeling of use that does not give a feeling of a rough deposit, usually 10nm - 500 micrometers are desirable, 100nm - 200 micrometers are more desirable, and 1 micrometer - 100 micrometers are still more desirable.

[0042] In a [base material] this application specification, "base material" Although especially the becoming word is not limited, it includes the concept which "English base" and English "binder" have, for example. The word which it "base material" Comes to set on these specifications includes for example, the base material for cosmetics, the base material for quasi drugs, the base material for drugs, a food-grade base material, and the base material for ink. The base material concerning this invention is applicable not only to cosmetics, quasi drugs, drugs, and food but aqueous adhesives, such as water paints, such as a skin care supply, a toiletries product, a water reducing agent for building materials, a water reducing agent for closets, water soluble paint, and emulsion paint, water-soluble adhesives, and emulsion adhesives, ink, a sizing agent, a textile-printing agent, a paper processing sizing compound, and a textiles sizing compound. In this specification, although are not necessarily limited, and the function which a base material demonstrates can be suitably chosen according to the purpose For a product, for example, the shape of the shape of the shape of the shape of a paste, and a cream, gel, and jelly, and ointment, The shape of the shape of the shape of form, pastiness, and rice cake, and a marshmallow, a binding property, a wettability, moistness, Absorptivity, lubricity, adhesiveness, stickiness, skin stickiness, membrane stickiness, thixotropy (thixotropy) nature, The function which contributes to grant of pH stability, thickening nature, emulsion stability, O/W emulsion stability, W/O emulsion stability, hand improvement nature, mouthfeel improvement nature, the feeling improvement nature of a deglutition, noodle quality improvement nature, writing improvement nature, etc. is also included.

[0043] In a [cosmetics] this application specification, "cosmetics" Although especially the becoming word is not limited, it can mention the mode shown in following ** - **, for example.

** Basic cosmetics; a cream, a milky lotion, face toilet, etc.

** Cosmetics for hair; pomade, a hair cream, a shampoo, a rinse, etc.

** Makeup products; face powder, a lip stick, rouge, a manicure, a pancake, etc.

** Perfume; a perfume, ogne, etc.

** Mens' cosmetics (except a hair supply); the cream for males, face toilet for males, etc.

** Medicated cosmetic (quasi drugs); medicated cream, hair dye, etc.

** Others; soap etc.

Moreover, into the word which it "cosmetics" Comes to set on these specifications, all the modes currently indicated by the "26th new-employee cosmetics technical school text" (June, Heisei 6, **; Asahi Seimei-Hall, sponsor; Tokyo cosmetics Semiconductor Equipment & Materials International and the Tokyo cosmetics engineer meeting, cosponsorship; Japanese *****) are included.

[0044] As an example of cosmetics, for example A shampoo, a hair rinse, a split hair coat, The 1st agent for a permanent wave, the 2nd agent for a permanent wave, a hair cream, Aerosol mold form, a hair conditioner, a hair style, A conditioning setting agent, a setting lotion, a hair color, Hair bleach, a hair treatment, a hair treatment rinse, A liquid charge for a haircut (lotion), a hair spray, a hair pack, a tonic, Hair cosmetics, such as hair growing and a hair restorer, face toilet, an after shaving lotion, Vanishing cream, cleansing cream, an emollient cream, Various creams, such as cold cream, a moisture cream, a hand cream, and facial cleansing cream, A depilatory, a face pack, a milky lotion, a body shampoo, various soap, a lip stick, a sunscreen lotion, a manicure, a nail polish, a nail enamel remover, a makeup supply, a sunscreen supply, etc. can be mentioned.

[0045] "Quasi drugs" Especially the becoming word is not limited in a [quasi-drugs] this application specification. As an example of quasi drugs, tooth paste etc. can be mentioned, for example.

[0046] "Drugs" Especially the becoming word is not limited in a [drugs] this application specification. As an example of drugs, cataplasms (patches for surgery for cold cataplasm or a hot compress) etc. can be mentioned, for example.

[0047] The cataplasms which make [cataplasms] bridge formation polyamino acid a basis usually blend gelling agents, such as drugs, such as wetting agents, such as inorganic powder, such as a kaolin, a bentonite, titanium oxide, a calcium carbonate, and a zinc oxide, a glycerol, propylene glycol, and a sorbitol, Timor, menthol, mentha oil, camphor, a salicylic acid, and a methyl salicylate, and gelatin. In addition, gelatin modifiers, such as water soluble polymer compounds, such as a carboxymethyl cellulose, hydroxyethyl cellulose, polyvinyl alcohol, gum arabic, xanthan gum, and polyamino acid, a urea, and formaldehyde, and an emulsifier may be added. Although especially the method of manufacturing cataplasms is not restricted, usually each component is mixed to homogeneity, it considers as a poultice plaster body, spreading spreading of this is carried out on suitable base fabrics, such as a lint cloth, at homogeneity, and it is manufactured by sticking the protection film made from exfoliation.

[0048] "Food" Especially the becoming word is not limited in [food] this application specification. As an example of food, fresh noodles, dried noodles, paste, Japanese sweets, a Western-style cake, a pan, etc. can be mentioned, for example.

[0049] "Ink" Especially the becoming word is not limited in a [ink] this application specification. As an example of ink, the water color ink used for a felt-tipped marker, a fountain pen, an ink jet printer, etc. can be mentioned, for example.

[0050] Although especially the loadings of the base material which comes to contain the bridge formation polyamino acid concerning [loadings of base material] this invention are not restricted, generally they are 0.1 - 20 % of the weight still more preferably 0.01 to 30% of the weight more preferably 0.001 to 50% of the weight preferably [convert into dry weight and].

[0051] The base material concerning [additive] this invention can be used with an additive. As for an additive, what usually has the property decomposed after use is desirable. In using the base material concerning this invention for example, for the charge of skin makeup The surfactant currently generally used as a charge component of skin makeup, oil, a moisturizer, A coat formation agent, an oil gelling agent, a metallic oxide, an organic ultraviolet ray absorbent, inorganic metal salts, By combining and blending with an additive component and arbitration, such as organic metal salts, alcohols, a chelating agent, pH regulator, antiseptics, other thickeners, a drug effect component, coloring matter, and perfume It can be made various

gestalten, for example, oil/charge of water (O/W) mold emulsification makeup, water/charge of oil (W/O) mold emulsification makeup, a cream, a makeup milky lotion, face toilet, oily face toilet, a lip stick, foundation, a skin cleaning agent, etc.

[0052] When using the base material concerning this invention for example, for the charge of hair makeup, it can be combined and blended with the component and arbitration which are generally used as a charge component of hair makeup, such as a surfactant, other thickeners, an oil gelling agent, a metallic oxide, an organic ultraviolet ray absorbent, inorganic metal salts, organic metal salts, a pearl-ized agent, an antioxidant, antiseptics, a drug effect component, coloring matter, and perfume. Moreover, in order to raise the feel of hair, silicone derivatives, such as cationic polymers, such as a cation-ized cellulose, and dimethylpolysiloxane, amino denaturation silicone, polyether denaturation silicone, can also be blended. Especially the pharmaceutical form of the charge of hair makeup is not limited, but can be made into the general charge of hair makeup of various pharmaceutical forms, such as an emulsion, suspension, gel, a transparency solution, and aerosol, i.e., a pre shampoo agent, a shampoo, hair rinse, hair treatment, hair conditioner, a conditioning blow agent, etc. according to an application.

[0053] Although the cosmetics which come to contain the base material concerning this invention show the outstanding feeling of use, and viscosity stability, when it uses together with a metallic oxide, inorganic metal salts, organic metal salts, etc., they can acquire a good feeling of use, and viscosity stability especially. Moreover, it can consider as SANKEA cosmetics excellent in a feeling of use, and viscosity stability etc. by blending an organic ultraviolet ray absorbent. Moreover, the ultraviolet-rays prevention effectiveness can be further heightened by using together a metallic oxide and an organic ultraviolet ray absorbent.

[0054] As an example of a [metallic-oxide] metallic oxide, titanium oxide, a zinc oxide, a ferrous-oxide zirconium dioxide, cerium oxide, etc. are mentioned, and silica processing, alumina processing, silica alumina processing, metallic soap processing, fatty-acid processing, amino acid processing, siliconization, alkyl phosphating, the fluoridization, etc. may be given, for example. Moreover, what compound-ized these two or more sorts or these, and other organic fine particles and inorganic fine particles may be used. The magnitude of these metallic oxides, especially a configuration, etc. are not limited, but are independent or can be blended combining two or more sorts. Generally the loadings of these metallic oxides are 0.005 - 30 % of the weight preferably 0.001 to 50% of the weight.

[0055] As an example of a [surfactant] surfactant For example, sodium lauryl sulfate, lauryl sulfuric-acid triethanolamine, Alkyl sulfate, such as a lauryl ammonium sulfate, polyoxyethylene lauryl ethereal sulfate sodium, Polyoxyethylene-alkyl-ether sulfate salts, such as polyoxyethylene lauryl ethereal sulfate triethanolamine, Lauryl sulfonic-acid sodium, a lauryl sulfonic-acid potassium, lauryl sulfonic-acid triethanolamine, Alkyl sulfonates, such as lauryl sulfonic-acid ammonium and stearyl sulfonic-acid sodium, Alkyl diphenyl ether disulfon acid chloride, such as dodecyl diphenyl ether disulfon acid sodium, Alkylaryl sulfonates, such as sodium dodecylbenzenesulfonate, Alkyl naphthalene sulfonic acids, such as sodium salt of dodecyl naphthalene sulfonic-acid sodium and beta-naphthalene sulfonic-acid formalin condensate, Dialkyl sulfosuccinate, such as a ligninsulfonic acid salt, distearyl sulfo sodium succinate, and sodium dioctyl sulfosuccinate, Polyoxyethylene-alkyl-ether acetate, such as a polyoxyethylene lauryl ether acetic acid and polyoxyethylene lauryl ether sodium acetate, The alkali-metal salt of the copolymer which has carboxyl groups, such as an alkylene maleic-acid copolymer, Palm oil fatty acid, a palmitic acid, behenic acid, a lauric acid, stearin acid, A myristic acid, oleic acid, lauric-acid sodium, a lauric-acid potassium, Lauric-acid triethanolamine, lauric-acid ammonium, a sodium stearate, A fatty acid or its salts, such as a stearin acid potassium, triethanolamine stearate, and ammonium stearate, Anionic surfactants, such as monoalkyl phosphate, such as sodium laurylphosphate, laurylphosphate triethanolamine, and laurylphosphate ammonium, [0056] Lauryl alcohol, myristyl alcohol, cetanol, the cetostearyl alcohol, Higher alcohol, such as stearyl alcohol, 2-octyl dodecanol, and behenyl alcohol A glycerol, ethylene glycol, a diethylene glycol, triethylene glycol, A polyethylene glycol, propylene glycol, dipropylene glycol, Polyhydric alcohol, such as a polypropylene glycol, a sorbitol, SORUBITANTO, and pentaerythritol, The polyoxyethylene lauryl ether, the polyoxyethylene cetyl ether,

Polyoxyethylene stearyl ether, the polyoxyethylene oleyl ether, Polyoxyethylene alkyl ether, such as the polyoxyethylene higher-alcohol ether, Polyoxyethylene octyl phenyl ether, the polyoxyethylene nonylphenyl ether, Polyoxyethylene octyldodecyl phenyl ether, polyoxyethylene octyl phenyl ether, Polyoxyethylene alkyl phenyl ether, such as the polyoxyethylene nonylphenyl ether, Polyoxyethylene styryl phenyl ether, a monostearin acid polyethylene glycol, A distearic acid polyethylene glycol, distearic acid ethylene glycol, Polyoxyethylene alkyl ester, such as polyoxyethylene hydrogenated castor oil, The copolymer of polyoxy ethylene glycol, such as a polyoxyethylene polyoxypropylene glycol, and a polyoxypropylene glycol, Mono-lauric-acid sorbitan, monostearin acid sorbitan, mono-oleic acid sorbitan, Mono-palmitic-acid sorbitan, sorbitan sesquioleate, palm-oil-fatty-acid sorbitan, Mono-palmitic-acid sorbitan, tristearin acid sorbitan, mono-oleic acid sorbitan, Sorbitan alkyl ester, such as triolein acid sorbitan, mono-lauryl acid polyoxyethylene sorbitan, Polyoxyethylene palm-oil-fatty-acid sorbitan, mono-palmitic-acid polyoxyethylene sorbitan, Monostearin acid polyoxyethylene sorbitan, tristearin acid polyoxyethylene sorbitan, Mono-oleic acid polyoxyethylene sorbitan, triolein acid polyoxyethylene sorbitan, Polyoxyethylene sorbitan alkyl ester, such as Tri isostearic acid polyoxyethylene sorbitan, Tetra-fatty-acid polyoxyethylene sorbitol, such as tetra-oleic acid polyoxyethylene sorbitol, Glycerol alkyl ester, such as glyceryl monostearate, a mono-oleic acid glycerol, and a mono-caprylic-acid glycerol, Propylene glycol alkyl ester, such as monostearin acid propylene glycol, The Nonion nature surfactants, such as alkyl alkanol amides, such as polyoxyethylene alkylamine, such as a polyoxyethylene stearyl amine, palm-kernel-oil fatty-acid diethanolamide, and lauric-acid diethanolamide, [0057] Cation system surfactants, such as benzalkonium salts, such as dialkyl dimethylammonium salts, such as alkyl trimethylammonium salts, such as alkylamine salts, such as coconut amine acetate and stearyl amine acetate, chlorination lauryl trimethylammonium, stearyl chloride trimethylammonium, and chlorination cetyl trimethylammonium, chlorination distearyldimethylbenzylammonium, and chlorination dialkyl (carbon atomic numbers 12-18) dimethylammonium, and a benzalkonium chloride, [0058] Alkyl betaines, such as a lauryl betaine and a stearyl betaine, lauryldimethyl betaine aminoacetate, Alkyl dimethylamino acetic-acid betaines, such as a stearyl dimethylamino acetic-acid betaine, Alkyl carboxymethyl hydroxyethyl imidazolinium betaine, such as 2-alkyl-N-carboxymethyl-N-hydroxyethyl imidazolinium betaine, Alkylamide propyl betaines, such as a lauric-acid amide propyl betaine and a coconut acid-amide propyl betaine, Both-sexes system surfactants, such as alkyldimethyl amine oxides, such as alkyl hydroxy sulfobetaine, such as lauryl hydroxy sulfobetaine, and a lauryldimethyl amine oxide, etc. can be mentioned.

[Translation done.]

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EXAMPLE

[Example] Hereafter, although an example explains this invention more concretely, this invention is not limited only to an example. In the following examples and examples of a comparison, the "section" means the "weight section."

[0060] [The evaluation approach]

(1) Measure by the compost method and the measurement biodegradability of biodegradability is ASTM. ISO which is application of D-5338.92 CD It carried out according to 14855. That is, the carbon content contained in a test sample was first measured in elemental analysis. Next, the test sample of the 15 sections was added to INOKYURAMU of the 800 sections, the amount of the carbon dioxide which performed for 40 days and was generated at 58 degrees C was measured, and the amount of generating carbon dioxides to the amount which converted into the carbon dioxide the carbon content contained in a test sample was expressed as a rate of biodegradation (%).

[0061] (2) Lessons was taken for the cosmetics practical use test cosmetics practical use test from the following items by 20 special panels (18-22-year-old woman), and organoleptics performed it.

- ** The feel at the time of spreading (take)
- ** The feel at the time of spreading (mileage)
- ** The feel after spreading (in the least admiration)
- ** The feel after spreading (gently admiration)

Lessons was taken for 20 special panels (18-22-year-old woman) from the above-mentioned item, and they estimated [the following criteria].

O -- A.

O -- Good.

** -- Good.

x -- Improper.

[0062] The [example 1 of compound manufacture] lysine methyl ester and 2 hydrochloride 7.2 section and the lysine and 1 hydrochloride 22.6 section were dissolved in the distilled water 40 section, and the caustic-alkali-of-sodium 7.8 section was added little by little, it neutralized, and the lysine water solution was prepared. On the other hand, the Pori succinimid 100 section of weight-average-molecular-weight (Mw) 96,000 was dissolved in DMF of the 400 sections under the nitrogen air current, and the lysine water solution was added, and at the room temperature, stirring was stopped after 1-hour churning and it reacted for 20 hours. It transported to the mixer by which the impeller with a cutting edge attached the reactant, the distilled water 400 section and the methanol 400 section were added, beating of the gel was carried out for 5 minutes in 8000rpm, and the caustic-alkali-of-sodium water-solution 129.7 section was dropped over 2 hours further 27% of the weight. It neutralized after dropping and 2 more hour churning until it was set to pH=7 using hydrochloric-acid water 7% of the weight. The methanol 300 section was further added after neutralization, and precipitate was dried at 60 degrees C, further, it ground until the particle diameter was set to 100 micrometers or less using the sample mill, and the absorptivity polymer 143 section was obtained. When the biodegradability of this resin was investigated, the rate of biodegradation was as good as 102%.

[0063] Bridge formation polyacrylic acid was manufactured according to the approach of [example 1 of compound manufacture comparison] JP,54-30710,B. When the biodegradability of this resin was investigated, the rate of biodegradation hardly indicated biodegradability to be 2.2%.

[0064] The bridge formation Pori aspartic acid obtained in the example 1 of [example 1] compound manufacture was blended, and face toilet was prepared. A combination presentation is as being shown below.

Bridge formation Pori aspartic acid 1.0 methyl parahydroxybenzoate 0.1 ethanol 10.0 purified water 88.9 thus obtained face toilet *****, and a cosmetics practical use test were performed. The result of a cosmetics practical use test was very good as shown in Table -1 [Table 1].

[表1] 表-1 化粧品実用テスト～1

		塗布時の感触		塗布後の感触	
		① と れ	② の び	③さっぱり感	④しっとり感
評価結果	◎	16人	17人	18人	17人
	○	4人	3人	2人	3人
	△	0人	0人	0人	0人
	×	0人	0人	0人	0人

The bridge formation polyacrylic acid obtained in the example 1 of the [example 1 of comparison] compound manufacture comparison was blended, and face toilet was prepared like the example 1. The same practical use test as an example 1 was carried out and evaluated. Thus, face toilet ***** and the cosmetics practical use test which were obtained were performed. The result of a cosmetics practical use test was inferior as compared with the result of an example 1 as shown in Table -2 [Table 2].

[表2] 表-2 化粧品実用テスト～2

		塗布時の感触		塗布後の感触	
		① と れ	② の び	③さっぱり感	④しっとり感
評価結果	◎	4人	5人	3人	4人
	○	14人	13人	16人	15人
	△	2人	2人	1人	1人
	×	0人	0人	0人	0人

The bridge formation Pori aspartic acid obtained in the example 1 of [example 2] compound manufacture was blended, and hair style gel was prepared. A combination presentation is as being shown below.

A bridge formation Pori aspartic acid 1.2 lactic-acid monoethanolamide 0.3 soybean-protein hydrolyzate 0.8 antiseptics 1.5 perfume 0.001 purified water Compared with the hair style gel

which blended the bridge formation polyacrylic acid of the example 1 of a compound manufacture comparison, there was little stickiness, and 96.2, thus the obtained hair style gel were felt refreshed, and that of the set force was good.

[0065] The bridge formation Pori aspartic acid obtained in the example 1 of [example 3] compound manufacture was blended, and cleansing cream gel was prepared. A combination presentation is as being shown below.

A bridge formation Pori aspartic acid 0.6 polyoxyethylene (15) nonylphenyl ether 2.0 triethanolamine 0.4 methylparaben 0.1 ethylparabens 0.1 propylparabens 0.05 ethanol 45.0 purified water Compared with the cleansing cream gel which has not blended the bridge formation Pori aspartic acid, 51.75, thus the obtained cleansing cream gel maintained the grace of the skin, and had the effectiveness which smooths the skin.

[0066] The bridge formation Pori aspartic acid obtained in the example 1 of [example 4] compound manufacture was blended, and cleansing cream was prepared. A combination presentation is as being shown below.

A bridge formation Pori aspartic acid 0.5 liquid paraffins 25.0 polyoxyethylene (15) palm-oil alkylamine 1.2 cetostearyl-alcohol hydroxy ethyl ether 10.0 antiseptics 0.3 triethanolamines 0.5 perfume 0.001 purified water 62.5 -- this cleansing cream was felt refreshed compared with the cleansing cream which has not blended the bridge formation Pori aspartic acid, moreover, the grace of the skin was maintained and there was effectiveness which smooths the skin.

[0067] The bridge formation Pori aspartic acid obtained in the example 1 of [example 5] compound manufacture was blended, and the poultice plaster body constituent was prepared. A combination presentation is as being shown below.

A bridge formation Pori aspartic acid The 5.0 carboxymethyl cellulose Na 10.0 glycerols 15.0 sorbitols 15.0 kaolins 12.0 l-menthol 2.5 d-camphor 0.3 methyl salicylates 0.2 gelatin 10.0 purified water 30.0 -- compared with the poultice plaster body constituent with which this poultice plaster body constituent has not blended the bridge formation Pori aspartic acid, sagging was controlled remarkably.

[0068] The bridge formation Pori aspartic acid obtained in the example 1 of [example 6] compound manufacture was blended, and red ink was prepared. A combination presentation is as being shown below.

A bridge formation Pori aspartic acid 2.5 eosine G H The 7.0 SANSETTO yellow FOF 1.0 ethylene glycol 15.0 glycerols 15.0 phenols 0.4 purified water 59.1 -- when the fountain pen was filled up with this ink and having been written down on the PPC form (NBS Ricoh make, alkaline paper), it excelled in note nature and there was no blot.

[Translation done.]

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